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GP-B's merits outweigh delays to other space science efforts. A technical panel will study why the vacuum test failed and whether there are other outstanding engineering issues.

A 1995 National Research Council report gave GP-B a yellow light, calling it "an extraordinarily well-designed experiment" but warning that technical hurdles remain. The panel did not compare GP-B with other

space science missions. Weiler warns that another bailout will force him to defer work on the Laser Interferometer Space Antenna, newly proposed in the 2004 budget request and slated for a 2011 launch. Grounding GP-B would also save \$60 million in launch costs, he adds.

There is no love lost between Weiler, a blunt-talking manager who has long ex-

pressed skepticism about the mission's cost and scientific value, and Everitt, a soft-spoken and articulate lobbyist with friends in Congress who have thwarted past attempts to kill the program. Weiler already faces a budget crisis without GP-B, thanks to rising cost estimates for the James Webb Space Telescope. But Everitt is determined to save his project. "I never relax." —ANDREW LAWLER

## ENVIRONMENTAL HEALTH

# Academy to Mediate Debate Over Rocket-Fuel Contaminants

Should tens of millions of U.S. residents worry that their children's drinking water is contaminated with tiny amounts of a rocket-fuel ingredient? The Environmental Protection Agency (EPA) says yes; the Department of Defense (DOD) and the defense and aerospace companies that manufacture or use the chemical, perchlorate, say no. Now, hard on the heels of a senator's call for rapid regulatory action, EPA, DOD, and several other agencies have agreed to let the National Academy of Sciences (NAS) settle the issue. But some scientists are worried that the new study may be more of a way to delay new standards than a quest for truth.

Both sides agree that perchlorate can decrease thyroid hormone levels, and thyroid hormone levels affect brain development. But EPA relies primarily on lab animal data that show effects at low levels of exposure, whereas the defense groups emphasize human data that show no such effects. A January 2002 EPA draft report recommended a drinking water concentration of 1 part per billion (ppb) as safe for human health, whereas DOD says the number is likely to be much higher.

The academy study will push back the final version of the EPA toxicological review, which had been expected early this year, says William Farland, EPA's acting deputy administrative director for science: "I feel strongly confident in the scientific analysis that we have put forward, but there are also genuine differences of opinion." Jeff Cornell, adviser to the deputy assistant secretary of the Air Force, agrees: "We have a difference in interpretation that we can't solve, so the best thing to do is take it to the NAS—the Supreme Court of science."

The latest development caught most EPA scientists involved with perchlorate by surprise. Some suspect that DOD called for the review with the goal of delaying costly cleanup operations. The military was "involved with study design and paid for much of the work," says Kevin Mayer, EPA's regional perchlorate coordinator in San Francisco. "But when they saw how the data was interpreted, they didn't like it," he says.

Not so, says Cornell. "The overriding concern of the Air Force and the Department of Defense is public health. What we know about the human health, environmental, financial, and operational impacts of perchlorate contamination is that it is a very large, important issue, and we have to get it right."

The Administration request came 1 week after Senator Barbara Boxer (D-CA) introduced a bill that would require EPA to set a regulatory standard for perchlorate in drinking

sites have been located in 22 states. Cleanup costs are likely to be enormous, say environmental engineers familiar with the problem.

EPA's draft recommendation draws upon studies suggesting that mothers who drink perchlorate-contaminated water could give birth to children with lower-than-average IQ, according to EPA toxicologist Annie Jarabek of Research Triangle Park, North Carolina, the EPA draft's principal author. In a 1999 study, the IQs of 48 children of hypothyroid women were 7 points lower at age 7 to 9 than were those of children of mothers without the condition. Rat experiments conducted for the EPA review indicate that low levels of perchlorate disrupt thyroid hormones and interfere with brain development in pups.

Studies involving adult volunteers suggest that low levels of perchlorate are not a cause for concern, however, at least in people with sufficient levels of iodine. Monte Greer and colleagues at Oregon Health and Science University in Portland and other teams used radioactive iodine isotopes to find out the relation between perchlorate and iodine uptake by the thyroid. Greer has reported that 180 to 220 ppb should be safe. But such studies aren't relevant, insists Grant Anderson, who studies thyroid hormones and brain development at the University of Minnesota, Twin Cities. Thyroid hormones exert their greatest effect on brain development just before and shortly after a baby is born, he says.

The now-delayed EPA review is the first step toward setting a regulatory standard for drinking water. The process usually takes 6 years after the review is finalized. The NAS request will slow this process; such reviews usually take about 2 years. —REBECCA RENNER  
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**Point source.** Perchlorate seeps via ground water into the Colorado River from this Kerr-McGee facility near Las Vegas

water by 1 July 2004. Three days later, military officials told the Senate Armed Services readiness and management support subcommittee that things are moving too fast. "We've excited the American people with little science to back it up," said H. T. Johnson, acting secretary of the Navy. DOD officials argue that EPA cannot order testing and cleanup of perchlorate until it sets a drinking water standard.

Military and defense industry sites are the principal sources of perchlorate contamination. Perchlorate salts are used as oxidizers in solid rocket fuel, which has a limited shelf life and must be replaced regularly. From the 1950s until recently, large volumes were washed out of missiles and rocket boosters onto the ground or into holding lagoons, according to a report by the American Water Works Association Research Foundation. To date, 75 perchlorate release